

[KEYERA BRAZEAU RIVER GAS PLANT / 3-12-46-14W5] PLANT 1

Customer: PTRHTF30084
 Keyera Partnership Brazeau River Ga...
 Box 7318
 Drayton Valley, AB T7A 1S5 Canada
 Attn: Gareth Buchanan
 Tel: (780)913-1176
 E-Mail: gareth_buchanan@keyera.com

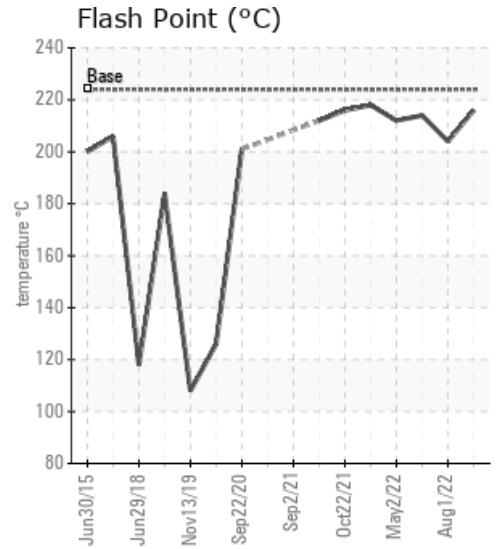
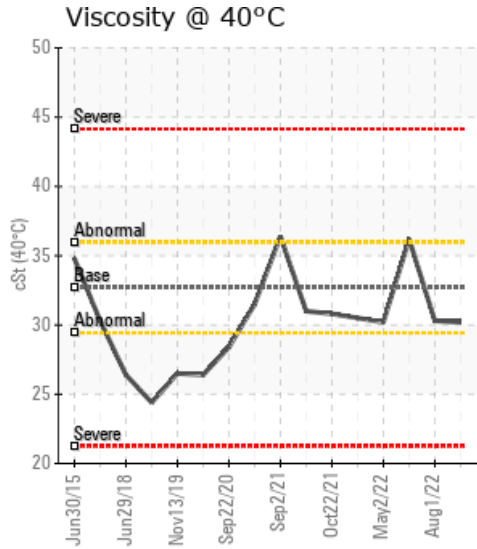
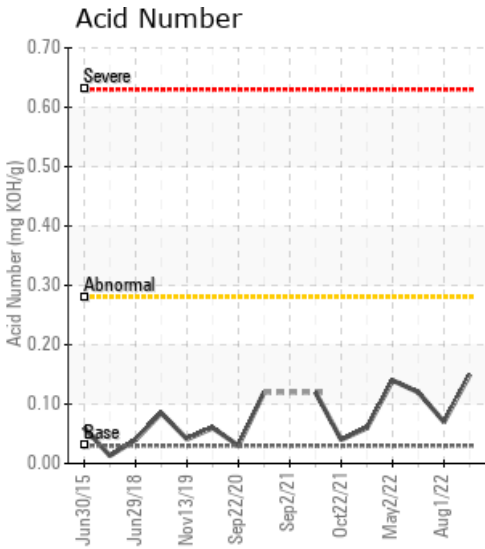
System Information
 System Volume: 14000 ltr
 Bulk Operating Temp: 446F / 230C
 Heating Source:
 Blanket:
 Fluid: PETRO CANADA CALFLO AF
 Make: IAP HEATER

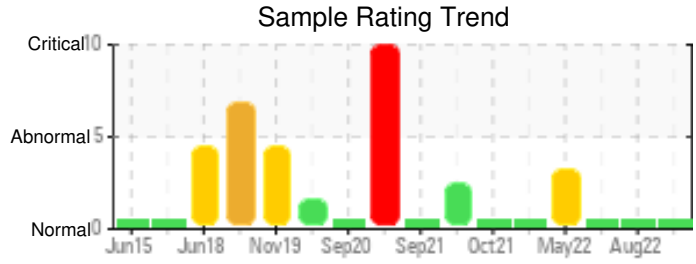
Sample Information
 Lab No: 02516485
 Analyst: Lyle Dach
 Sample Date: 10/08/22
 Received Date: 10/17/22
 Completed: 10/26/22
 Lyle Dach
 lyle.dach@HFSinclair.com

Recommendation: Sample results indicate that the fluid is in good condition and is suitable for continued service. Pentane insolubles are up slightly from the last sample. Resample in 12 months.

Comments:

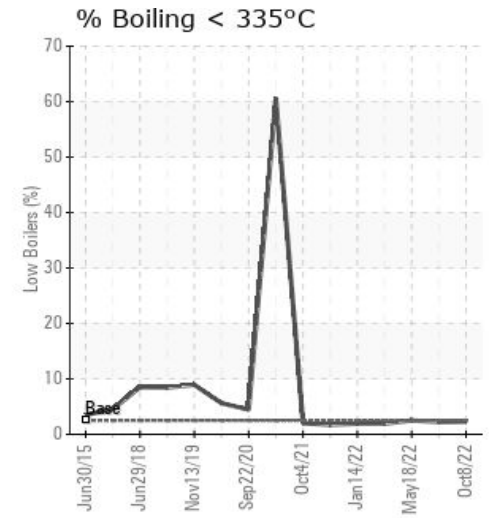
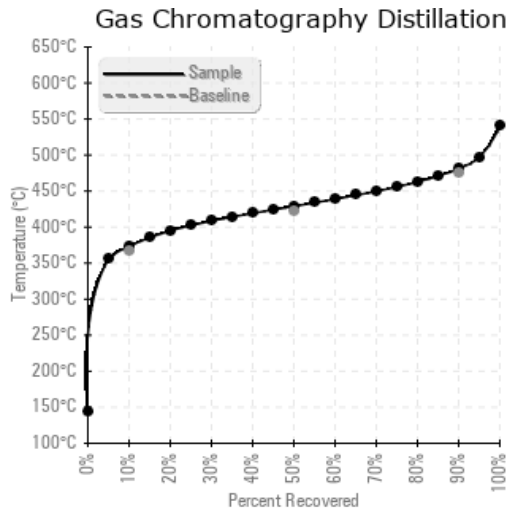
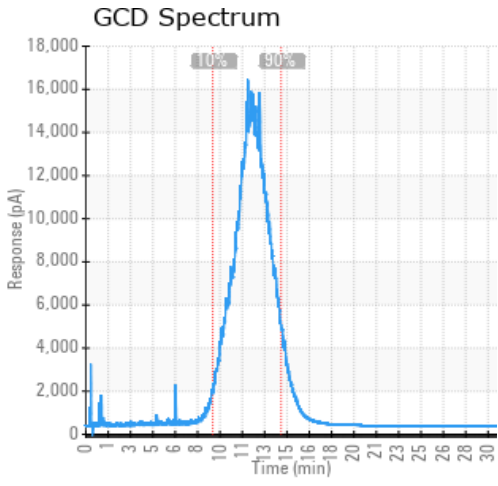
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
10/08/22	10/17/22	0.0m		421 / 216	117.9	30.2	0.15	0.355	704 / 373	804 / 429	898 / 481	2.29
08/01/22	08/18/22	15.0m	PUMP DISCHARGE	399 / 204	142.9	30.3	0.07	0.027	704 / 373	804 / 429	897 / 481	2.22
05/18/22	05/26/22	12.0m		417 / 214	131.6	36.2	0.12	0.062	701 / 371	804 / 429	899 / 482	2.51
05/02/22	05/09/22	12.0m	Hot oil filter	414 / 212	1015.6	30.2	0.14	0.060	704 / 374	805 / 430	900 / 482	1.91
01/14/22	02/04/22	0.0m	hot oil pump 1	424 / 218	308.7	30.5	0.06	0.034	703 / 373	804 / 429	899 / 482	1.90
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5





Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
10/08/22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	37	0
08/01/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	39	0
05/18/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	43	0
05/02/22	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	7	0	0	0	45	0
01/14/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	56	0
Baseline Data			0	0						0			0	0					0				270	

Elemental analysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]



Historical Comments

08/01/22	Fluid is in very good condition and is suitable for continued service. Fluids iPH is 6.54 and acid number is very low at 0.07. Resample in 12 months.
05/18/22	Sample results indicate that the fluid is in suitable condition for continued service. Resample in 12 months.
05/02/22	Water content has climbed again, ensure all ingress locations are closed. Is there any process locations that could allow water to enter the heating fluid? It would be best to boil off excess water to reduce the corrosion risk, vent the steam to ensure there are no unwanted boil overs. Confirm samples are representative of the entire system, if possible the collection points are turbulent areas (pump discharge) and that sample lines are purged until hot fluid has flowed for several seconds prior to collecting the sample. Resample in 6 months. Water contamination levels are severely high. ppm Water contamination levels are severely high.
01/14/22	Sample results indicate that the fluid is in suitable condition for continued service. Resample in 12 months

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